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A NEW CROCODILE FROM THE  
PHILIPPINE ISLANDS

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The salt-water crocodile, *Crocodylus porosus*, which is widespread in the East Indies, is the common crocodile of the Philippine Islands, ranging throughout the archipelago. Very large specimens occur, and the largest skull on record, in the Museum of Comparative Zoology, was traced to its source in Luzon by Barbour (1924, p. 16). Two large skulls in Field Museum, collected in Lake Naujan, Mindoro Island, in 1891, by D. C. Worcester and F. S. Bourns for the Menage Expedition, unquestionably represent the species *porosus*. These attracted my interest and were cleaned and examined critically in drawing up the description of *Crocodylus novae-guineae* in 1928. During a short stay in the Philippines en route home from the Crane Pacific Expedition of Field Museum, in 1929, I obtained a small crocodile of the species *porosus* at Zamboanga, Mindanao. During this expedition, a series of skulls of both *porosus* and *novae-guineae* was obtained in New Guinea, and my interest in these species renewed. On arriving in Manila, accompanied by Mr. Walter A. Weber, artist of the expedition, we were most cordially received by Mr. W. H. Brown, Director of the Bureau of Science, and Mr. H. R. Montalban, of the Division of Fisheries. Through the interest of these gentlemen, three small crocodiles, presumably also from the vicinity of Lake Naujan, were obtained for us from the island of Mindoro and presented to Field Museum. These specimens were unfortunately long delayed in transit, so that they reached Chicago as dried mummies.

Greatly to my surprise, these Mindoro specimens proved to be entirely distinct from the species already at hand from Lake Naujan, and to be equally different from *Crocodylus palustris*, recorded from Borneo and Palawan, as well as from *C. siamensis* of southeastern Asia. Further examination of this material was postponed in the hope that additional specimens might be obtained. In examining some uncleaned crocodile heads (without data) stored in Field

Museum, I find one which exhibits the six postoccipital scutes of the Mindoro form, and on preparation of this skull it proves to agree so minutely with the three smaller skulls cleaned up from the dried specimens that there can be no doubt that it is also from the Philippines, received either with the Menage Expedition collections, or from Dr. J. B. Steere, who is also known to have collected on Mindoro. The examination of the four specimens available convinces me that the species is certainly distinct and undescribed, and I feel that its publication will call attention to its existence and promote further collecting. It may be named:

***Crocodylus mindorensis* sp. nov.**

*Type* from the island of Mindoro, Philippine Islands. No. 11135 Field Museum of Natural History. Received in 1929 from the Philippine Bureau of Science. Mummified body and cleaned skull.

*Diagnosis*.—Allied more closely to *Crocodylus novae-guineae* than to any other species, agreeing with it in the characters which distinguish it from *C. porosus*; namely, presence of occipital scutes, more incised webs on hind feet, enlarged pectoral plates, scutes of dorsal shield in contact laterally, inferior opening of internal nares, and uninflated palatines. Distinguished from *novae-guineae* by its proportionately broader and heavier skull, larger eustachian tube, palatines less parallel-sided, heavier pitting of skull and more pronounced antorbital ridges.

*Description of type*.—Dorsal shield consisting of 17 transverse rows of scutes, composed of 8 scutes each at mid-body, the bony scutes in contact; postoccipitals 6; nuchals 4-2-2; web of hind toes strongly incised; a row of enlarged pectoral scutes, behind which there are 25 transverse rows of ventral plates to the anterior border of the anus; 18 segments of the tail with a double crest, followed by 18 single-crested segments.

Skull of intermediate type, neither extremely broad nor elongated. Snout distinctly broader than in either *porosus* or *novae-guineae*. Antorbital ridge high and abrupt laterally as compared with *novae-guineae*, failing to continue on the naso-maxillary suture as it does in *porosus*. Pitting of the dorsal surface much deeper and coarser than in skulls of the same size of either *novae-guineae* or *porosus*. Premaxillary teeth 5; festooning of maxillary teeth pronounced, more so than in the allied species; opening of internal nares downwardly directed; eustachian opening of skull larger than in *novae-guineae*, about as in *porosus*; form of cranial table intermediate between that of *porosus* and *novae-guineae*; posterior border of frontal

transverse without projecting angle; width of parietal between the supratemporal fenestrae distinctly narrower than in *novae-guineae*;

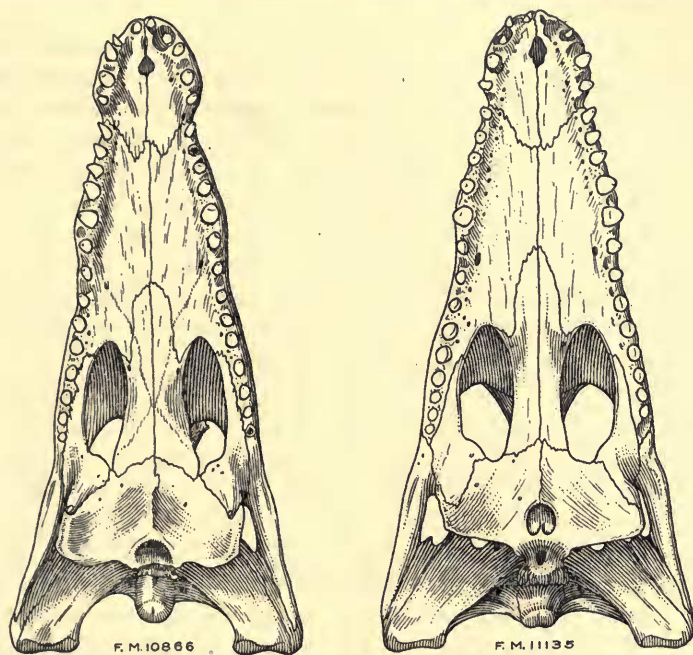


FIG. 3. Palatal views of skulls of Mindoro crocodiles. No. 10866, *Crocodylus porosus*, Lake Naujan, Mindoro Island.  $\times \frac{1}{2}$ . No. 11135, *Crocodylus mindorensis* sp. nov., Mindoro Island. Type.  $\times \frac{1}{2}$ .

palatines of the normal crocodilian type, not at all inflated at their union with the pterygoids, conspicuously different in shape from the same bones in *novae-guineae*.

#### MEASUREMENTS OF THE SKULL (In millimeters)

	Field Mus. No. 11135 (Type)	Field Mus. No. 11136	Field Mus. No. 11137	Field Mus. No. 19891
Length to occipital.....	158.0	150.5	200.4	241.0
Length of snout.....	96.3	90.8	127.5	155.0
Width of quadratojugals.....	78.5	75.6	92.8	127.0
Width of snout.....	56.0	55.5	73.4	89.5
Width at tenth tooth.....	42.5	43.5	51.0	64.5

*Notes on paratypes.*—The three paratypes are in extremely close agreement with the type in all the diagnostic characters. No. 11137 has the snout constricted at about the twelfth tooth, apparently an abnormality. The festooning of the teeth and heavier pitting of the skulls suggest that the species is small. The largest skull (without data) would correspond with a crocodile of about 1.7 meters in length



(less than 6 feet). The correspondence of this skull, No. 19891, even in minor details, with the three subsequently received from Mindoro is extraordinary.

*Remarks.*—The new Philippine species is quite obviously to be interpreted as a fresh-water species, and where *porosus* enters inland lakes it is doubtless found in marshes and smaller bodies of water. Malcolm Smith (1919, p. 218; 1931, p. 42), in distinguishing *C. siamensis* from *C. porosus* calls attention to the juxtaposed elements of the dorsal shield, the enlarged pectoral plates, and the more incised webs of *siamensis*. *Crocodylus mindorensis* and *novae-guineae* agree with *siamensis* in these respects. The skull of *mindorensis* is much more slender and lighter in construction than that of *palustris*. It differs from *siamensis* in the narrow interorbital space, the five premaxillary teeth, the absence of a median ridge on the frontal, and the more posterior position of the enlarged fifth maxillary teeth. The new form does, however, form a link in the chain of species of fresh-water crocodiles with mutually exclusive ranges—*palustris* in India, *siamensis* in southeastern Asia, *mindorensis* in Mindoro, *novae-guineae* in New Guinea, and *johnstoni* in Queensland. I suspect that *C. biporcatus raninus* of Müller and Schlegel may be the Bornean representative of this fresh-water series, and it is reasonable to suspect another undescribed species in the ancient lakes of Celebes. Field observation of the habitat relations of *Crocodylus mindorensis* with *C. porosus* affords an interesting problem for any naturalist visiting the Philippines.

I have followed Stejneger (1933, p. 117) in retaining Laurenti's generic name *Crocodylus* in the long customary sense.

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